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Diapers: What do Parents Choose and Why?

SUMMARY

Self-administered questionnaires about diaper choices and the reasons for such choices were completed by 600 parents of children younger than two years of age attending a hospital walk-in clinic or the private office of one of four pediatricians. Only 2.7% of the parents used cloth alone; another 15% used both cloth and disposable diapers; a further 18% reported having used cloth at some time. Convenience and rash prevention were reasons for choosing disposable diapers. Those who used only cloth washed at home cited cost and rash prevention. Those who used cloth diapers from a service cited convenience and rash prevention. Only 10% of parents received advice about diapers from their physicians, but 70% said they would follow such advice. Primary care providers can point out to parents that disposable diapers are more costly and present environmental concerns. (*Can Fam Physician* 1990; 36:1705-1708.)

Key words: dermatology, diapers, diaper rash, disposable diapers, family medicine, pediatrics

RÉSUMÉ

Six cent parents de jeunes enfants de deux ans et moins vus en clinique externe d'un centre hospitalier ou au bureau de l'un des quatre pédiatres ont rempli des questionnaires concernant le choix des couches qu'ils utilisent et les raisons qui motivent ces choix. Seulement 2.7 % des parents utilisent des couches en tissu; 15 % utilisent des couches de tissu et des couches jetables; un autre 18 % rapportent avoir utilisé des couches de tissu à un certain moment. L'aspect pratique et la prévention des éruptions cutanées furent les raisons ayant motivé le choix des couches jetables. Ceux qui ont utilisé les couches de tissu lavées à la maison ont, quant à eux, cité comme raison le coût et la prévention des éruptions. Ceux qui ont utilisé le service de nettoyage des couches de tissu ont cité l'aspect pratique et la prévention des éruptions. Seulement 10 % des parents ont reçu des conseils médicaux sur l'utilisation des couches, mais 70 % ont dit qu'ils suivraient ces conseils. Les dispensateurs de soins de première ligne peuvent faire remarquer aux parents que les couches jetables constituent un investissement plus coûteux et soulèvent des inquiétudes sur le plan écologique.

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FIFTEEN YEARS AGO Koblenzer¹ predicted that "the time of the disposable diaper is at hand and the end of the diaper pail is near." As most pediatricians realize, this prediction has almost come true. Although environmental concerns and high costs have been associated with disposable diapers, use of various types of diaper has not been systematically studied since Koblenzer's prediction.

This study was designed to determine 1) the frequency of use of different types of diapers; 2) factors (prevention of rash, convenience, cost) and sources of information that influence parents' choice of diapers; and 3) whether there is any correlation between the type of

diaper used and parents' age, education, employment, marital status, or number of other children.

Methods

Six hundred self-administered questionnaires (Chart 1) were completed anonymously by parents of children younger than two years of age. Three hundred parents attended a hospital walk-in clinic and 300 attended the private offices of four pediatricians in Ottawa. English and French versions of the questionnaires were available.

A t test was used to examine differences in parents' age between types of diapers used. Chi-square tests were employed to examine the association

Chart 1

Questionnaire on Diaper Use in Children Younger than Two Years of Age

Dear Parent:

Please mark (x) for the appropriate answers.

1. How old is the child you brought in to the clinic today? (____ month)

2. Which types of diapers do you use? (check as many as are applicable)

Disposable ____ Cloth (washed at home) ____ Cloth (diaper services) ____ Don't know ____

3. If you use disposable and cloth diapers, which type do you use most?

Disposable ____ Cloth (washed at home) ____ Cloth (diaper services) ____

Same frequency for both ____ Don't know ____

4. For each type of diaper that you use (checked in question 2 above), please indicate the reasons for your choice.
(If you don't use a specific type, just leave the area blank).

Disposable:

Low cost ____ Convenience ____ Health: (rash) ____ Don't know ____ Other (specify) ____

Cloth (washed at home):

Low cost ____ Convenience ____ Health: (rash) ____ Don't know ____ Other (specify) ____

Cloth (diaper services):

Low cost ____ Convenience ____ Health: (rash) ____ Don't know ____ Other (specify) ____

5. Did you get any information about diapers and use of diapers from:

Family members ____ Friends ____ Nurse ____ Magazines or TV ____ Physician ____ Don't know ____

6. Which sources of information influenced your choice of diaper?

Experience with my other children ____ Family members ____ Friends ____ Nurse ____

Magazines or TV ____ Physician ____ Don't know ____

7. Suppose your doctor told you a recent study indicated that a particular type of diapers was best for your child's health. Would you then change to that type of diapers?

Yes ____ No ____ Don't know ____

8. Did you at any time change the type of diaper you are using (from cloth to disposable or from disposable to cloth)?

Yes ____ No ____ Don't know ____

9. If you have changed the type(s) of diaper you are using, what type(s) did you use before?
(Check as many as are applicable.)

Disposable ____ Cloth (washed at home) ____ Cloth (diaper services) ____ Don't know ____

10. Who has completed the questionnaire?

Mother ____ Father ____ Other (specify) ____

11. Age of child's father ____ years

Age of child's mother ____ years

Age of all other children ____ years ____ ____ ____ ____

12. Parent's education (highest level achieved); please mark (x) for appropriate answer.

	Father	Mother
Less than grade 9	—	—
High school (without diploma)	—	—
High school (with diploma)	—	—
Trades (certificates)	—	—
College (without diploma)	—	—
College (with diploma)	—	—
University (without diploma)	—	—
University (with degree)	—	—

13. Marital status; please mark (x) for appropriate answer.

	Mother	Father
Married	—	—
Divorced	—	—
Widowed	—	—
Separated	—	—
Common-law	—	—

14. Currently employed (outside home)

Mother ____ Father ____

between the type of diaper used and parents' level of education, marital status, employment status, and number of children. Because of the relatively few cloth diaper users, we employed a dichotomous classification: those who used disposable diapers only, and those who used cloth diapers or any combination of cloth and disposable.

Results

Study Population

Ninety-eight per cent of the questionnaires were completed and returned. The response rate for each question was at least 86%. Most questionnaires (86%) were completed by the mothers; 9.5% were completed by the fathers, 3% by both parents, and 1.5% by other family members or caregivers. Most parents (94% of mothers, 89% of fathers) were in their 20s and 30s; 2.4% of mothers and 0.7% of fathers were teenagers. The remaining parents were 40 years of age and older.

Families were generally small. Thirty-eight per cent of parents had no other child; 46% had one other child; 12% had two other children. Only in 4% of the families were there three or more other children. Children ranged in age from birth to two years; 57.2% were younger than one year of age. The edu-

cation of parents varied, but 87% of mothers and 88% of fathers had at least high school graduation. Ninety-four per cent of fathers (48% of mothers) were employed. This employment figure is representative of our community.

Type of Diaper Used

Disposable diapers only were used by 82.3% of parents; 2.0% used only cloth diapers washed at home, and 0.7% used only cloth diaper services. Fifteen per cent used a combination of disposable and cloth diapers (mostly disposable and cloth washed at home—11.2%). Of the parents using a combination of diapers, 46% used cloth more frequently than disposable diapers. Of parents using disposable only at the time of the study, 18% had used cloth at some point. Therefore, 35.7% of parents had used cloth alone or in some combination, at some time.

The age of the child was not a factor in diaper choice; cloth and disposable diapers were used in all infancy age groups. Nor was any correlation found between the type of diaper used and parents' age, education, employment, marital status, or number of other children.

Reasons for Choice

The reasons for using cloth diapers washed at home were mainly low cost

(76%) and better protection from rash (48%). Some parents (22.8%) thought cloth diapers washed at home were convenient to use. Reasons for using disposables were mainly convenience (87.7%) and rash prevention (29%). Seventeen per cent thought disposable diapers were cheaper. Cloth diaper services were used because of convenience (65.2%), low cost (34.8%), and better protection from rash (47.8%). Thirty-six parents (6%) mentioned other reasons for using a specific type of diaper. The reasons for using disposable diapers were a better fit, greater absorbency, the absence of perfume, thinness, and the requirements of the child's day-care providers. Cloth diapers washed at home were used because they were considered more comfortable in hot weather and better fitting. Cloth diaper services were used because they were cleaner and, in one case, because they were given as a gift. Only two parents (0.3%), one using disposable diapers and the other using cloth diapers washed at home, were concerned about environmental factors.

Sources of Information

The main sources of information about the different types of diapers were family members (30.5%), friends (28%), and advertisements (22%).

Only 10% of parents said they received information from either their physician or their nurse. Sources of information that influenced parents' choice of diapers were family members (21%), friends (18.5%), and advertisements (11.3%). The most important influence was parents' own experience (41%). Only 3.9% of parents were influenced by their nurse and 4.5% by their physician. Seventy per cent of parents said, however, that they would change the diaper used if so advised by their physician.

Discussion

Despite the fact that disposable diapers cost \$400 to \$500 more per year per child than cloth, only 2.7% of parents in this urban Canadian study used cloth diapers exclusively, and 82.3% of parents used disposable diapers exclusively. The main reason given for this choice was the convenience of disposable diapers. Physicians played a minor role in providing information and influencing parents' choice of diapers, although 70% of respondents were open to such influence. While this study confirms Koblenzer's¹ 1973 prediction of the end of the cloth diaper era, three concerns may influence diaper use patterns in the future.

First, although the difference in cost between cloth and disposable diapers might not be significant to some parents, cloth diapers represent a substantial economic advantage for families with limited incomes that have access to automatic washers and dryers. The 17% of parents who used disposable diapers because they thought they were cheaper might have reconsidered had they been given accurate information by their physicians. The difference in cost is important to larger agencies and institutions. The town of Lisbon, Maine, for example, recently prohibited the use of welfare funds for the purchase of disposable diapers.²

Second, used disposable diapers generate an enormous amount of waste—about 250 000 tons every year in Canada alone—and contribute to ecological problems. Diapers do not degrade. If they are incinerated, gases from the plastic are released into the air. When they go to landfill sites, they take

up valuable space.³ All-natural (cotton) disposable diapers are being developed now, which may be biodegradable.⁴ In this study, parents were not directly asked about their ecological views, but they could have expressed their concerns; only two did.

In the last decade, four clinical studies⁵⁻⁸ have compared the effects of cloth and disposable diapers on the prevention and treatment of diaper rash. Three studies⁶⁻⁸ concluded that babies in disposable diapers had a lower incidence of diaper rash; only one⁵ found that cloth diapers prevented rash better.

All four studies were flawed methodologically, however, leaving the issue unresolved. Wiener's study⁵ was not blind; infants were seen only once, at the age of one month; there was no information about social class and no mention of the number of diaper changes or of the use of creams or soaps. Stein's study⁶ was not randomized, and the laundering of cloth diapers was not uniform. The study by Jordan and associates⁷ was randomized, but all infants were seen for only one or two visits or with no long-term follow up; the use of soap, creams, and laundry was not standardized. Campbell and colleagues⁸ failed to report the specific ages of infants; fewer infants were assigned to use cloth diapers (354) than to either of the two types of disposable diapers (522 and 738); there was no standardization of the use of soap, creams, and laundry or of the number of diaper changes. The evaluation of diaper rash was subjective, and the degree of rash babies suffered with the test products was compared with the degree of rash suffered when using diapers supplied by the parents; the test products were not compared with each other.

The use of disposable diapers has been reported to complicate pediatric care in three situations. 1) Superabsorbent brands feel dry even after urination. This could lead to the false impression of inadequate urine output in newborn infants.⁹ 2) In warm incubators with high humidity, superabsorbent diapers gain weight. This could lead to the incorrect impression of adequate urine output in newborn infants.¹⁰ 3) Cloth diapers can be squeezed and the urine dropped measured for refractometry

(specific gravity). Squeezing the new disposable diapers yields a gel (the material used for better absorbency).¹¹

Conclusion

Diaper rash has always been a common problem of infancy. Cloth diapers have been used for many years, and many still believe they are best for the prevention of diaper rash. Disposable diapers are more convenient, however, and in most homes have replaced cloth diapers. New and better types of both disposable and cloth diapers are marketed frequently.

We believe that physicians should be concerned with environmental issues and should encourage their patients to show the same concern. We therefore urge physicians to use their influence with their patients and take a stand in favour of cloth diapers.

Given ecological and cost factors, it will be interesting to repeat our study 20 years from now. ■

References

1. Koblenzer PJ. Diaper dermatitis—an overview. *Clin Pediatr* 1973; 12:386-92.
2. Anonymous. Let them use cloth diapers. *The New York Times* 1988 Mar 20:42.
3. McIlroy A. The dirty truth about disposable diapers. *The Ottawa Citizen* 1988 Sep 25:D8.
4. Zidonis A. Disposable diapers may go all natural. *USA Today* 1988 Oct 3:D1.
5. Wiener F. The relationship of diaper to diaper rashes in the one month old infant. *J Pediatr* 1979; 95:422-4.
6. Stein H. Incidence of diaper rash when using cloth and disposable diapers. *J Pediatr* 1982; 101(5):721-3.
7. Jordan WE, Lawson DK, Berg RW. Diaper rash frequency and severity among a general infant population. *Pediatr Dermatol* 1986; 3(3):198-201.
8. Campbell RL, Seymour JL, Stone LC, Milligan MC. Clinical studies with disposable diapers containing absorbent gelling materials: evaluation of effects on infant skin condition. *J Am Acad Dermatol* 1987; 17:978-87.
9. Lavin A. Super-efficient diaper can cause confusion [Letter]. *Pediatrics* 1986; 78:1173-4.
10. Hermansen MC. Super diapers and premature infants [Letter]. *Pediatrics* 1987; 79:1056-7.
11. Meyers A. More problems with new Pampers [Letter]. *Pediatrics* 1988; 81:329.